

09/759,801

P06270US00

Amendments to the Claims

Claim 1 (Previously presented): Seed of maize inbred line designated PH54M, representative seed of said line having been deposited under ATCC Accession No. PTA-4527.

Claims 2-72 (Canceled)

Claim 73 (New): A maize plant, or a part thereof, produced by growing the seed of claim 1.

Claim 74 (New): The maize plant of claim 73 wherein said plant has been detasseled.

Claim 75 (New): A tissue culture of regenerable cells produced from the plant of claim 73.

Claim 76 (New): Protoplasts produced from the tissue culture of claim 75.

Claim 77 (New): The tissue culture of claim 75, wherein cells of the tissue culture are from a tissue selected from the group consisting of leaf, pollen, embryo, root, root tip, anther, silk, flower, kernel, ear, cob, husk and stalk.

Claim 78 (New): A maize plant regenerated from the tissue culture of claim 75, said plant having all the morphological and physiological characteristics of inbred line PH54M, representative seed of said line having been deposited under ATCC Accession No. PTA-4527.

Claim 79 (New): A method for producing an F1 hybrid maize seed, comprising crossing the plant of claim 73 with a different maize plant and harvesting the resultant F1 hybrid maize seed.

Claim 80 (New): A method of producing a male sterile maize plant comprising transforming the maize plant of claim 73 with a nucleic acid molecule that confers male sterility.

Claim 81 (New): A male sterile maize plant produced by the method of claim 80.

09/759,801

P06270US00

**Claim 82 (New):** A method of producing an herbicide resistant maize plant comprising transforming the maize plant of claim 73 with a transgene that confers herbicide resistance.

**Claim 83 (New):** An herbicide resistant maize plant produced by the method of claim 82.

**Claim 84 (New):** The maize plant of claim 83, wherein the transgene confers resistance to an herbicide selected from the group consisting of: imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine and benzonitrile.

**Claim 85 (New):** A method of producing an insect resistant maize plant comprising transforming the maize plant of claim 73 with a transgene that confers insect resistance.

**Claim 86 (New):** An insect resistant maize plant produced by the method of claim 85.

**Claim 87 (New):** The maize plant of claim 86, wherein the transgene encodes a *Bacillus thuringiensis* endotoxin.

**Claim 88 (New):** A method of producing a disease resistant maize plant comprising transforming the maize plant of claim 73 with a transgene that confers disease resistance.

**Claim 89 (New):** A disease resistant maize plant produced by the method of claim 88.

**Claim 90 (New):** A method of producing a maize plant with decreased phytate content comprising transforming the maize plant of claim 73 with a transgene encoding phytase.

**Claim 91 (New):** A maize plant with decreased phytate content produced by the method of claim 90.

**Claim 92 (New):** A method of producing a maize plant with modified fatty acid metabolism or modified carbohydrate metabolism comprising transforming the maize plant of claim 73 with

09/759,801

P06270US00

a transgene encoding a protein selected from the group consisting of stearyl-ACP desaturase, fructosyltransferase, levansucrase, alpha-amylase, invertase and starch branching enzyme.

**Claim 93 (New):** A maize plant produced by the method of claim 92.

**Claim 94 (New):** The maize plant of claim 93 wherein the transgene confers a trait selected from the group consisting of waxy starch and increased amylose starch.

**Claim 95 (New):** A maize plant, or part thereof, having all the physiological and morphological characteristics of the inbred line PH54M, representative seed of said line having been deposited under ATCC Accession No. PTA-4527.

**Claim 96 (New):** A method of introducing a desired trait into maize inbred line PH54M comprising:

(a) crossing PH54M plants grown from PH54M seed, representative seed of which has been deposited under ATCC Accession No. PTA-4527, with plants of another maize line that comprise a desired trait to produce F1 progeny plants, wherein the desired trait is selected from the group consisting of male sterility, herbicide resistance, insect resistance, disease resistance and waxy starch;

(b) selecting F1 progeny plants that have the desired trait to produce selected F1 progeny plants;

(c) crossing the selected progeny plants with the PH54M plants to produce backcross progeny plants;

(d) selecting for backcross progeny plants that have the desired trait and physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 to produce selected backcross progeny plants; and

(e) repeating steps (c) and (d) three or more times in succession to produce selected fourth or higher backcross progeny plants that comprise the desired trait and all of the physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.

09/759,801

P06270US00

Claim 97 (New): A plant produced by the method of claim 96, wherein the plant has the desired trait and all of the physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.

Claim 98 (New): The plant of claim 97 wherein the desired trait is herbicide resistance and the resistance is conferred to an herbicide selected from the group consisting of: imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine and benzonitrile.

Claim 99 (New): The plant of claim 97 wherein the desired trait is insect resistance and the insect resistance is conferred by a transgene encoding a *Bacillus thuringiensis* endotoxin.

Claim 100 (New): The plant of claim 97 wherein the desired trait is male sterility and the trait is conferred by a cytoplasmic nucleic acid molecule that confers male sterility.

Claim 101 (New): A method of modifying fatty acid metabolism, phytic acid metabolism or carbohydrate metabolism in maize inbred line PH54M comprising:

(a) crossing PH54M plants grown from PH54M seed, representative seed of which has been deposited under ATCC Accession No. PTA-4527, with plants of another maize line that comprise a nucleic acid molecule encoding an enzyme selected from the group consisting of phytase, stearyl-ACP desaturase, fructosyltransferase, levansucrase, alpha-amylase, invertase and starch branching enzyme;

(b) selecting F1 progeny plants that have said nucleic acid molecule to produce selected F1 progeny plants;

(c) crossing the selected progeny plants with the PH54M plants to produce backcross progeny plants;

(d) selecting for backcross progeny plants that have said nucleic acid molecule and physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 to produce selected backcross progeny plants; and

(e) repeating steps (c) and (d) three or more times in succession to produce selected fourth or higher backcross progeny plants that comprise said nucleic acid molecule and have all

09/759,801

P06270US00

of the physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.

Claim 102 (New): A plant produced by the method of claim 101, wherein the plant comprises the nucleic acid molecule and has all of the physiological and morphological characteristics of maize inbred line PH54M listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.